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EXAMINER

WOZNIAK, JAMES S

ART UNIT

PAPER NUMBER

2626

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,517

Applicant(s)

LIU ET AL.

Examiner

James S. Wozniak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10-14 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 6/23/2006, the applicant has submitted an amendment, filed 9/25/2006, amending claims 1, 4, 7, 10, 13, and 16, while arguing to traverse the art rejection based on the amended limitations (*Amendment, Page 7*). The applicant's arguments have been fully considered but are moot with respect to the new grounds of rejection, necessitated by the amended claims and in view of McKeown et al ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999).

2. Due to the amendment of claim 7, the examiner has withdrawn the previous 35 U.S.C. 101 rejection directed towards non-statutory subject matter.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. **Claims 1, 5, and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by McKeown et al ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999).

With respect to **Claim 1**, McKeown discloses:

Parsing a plurality of documents (*breaking a set of documents into text units, Page 454, System Architecture*);

Selecting paragraphs from the documents through a subsuming relation calculation (*determining paragraph similarity based on matching terms and relationships for paragraph selection in theme determination, Page 454, Identifying themes*), wherein the subsuming relation calculation includes:

Linking noun phrases, verb phrases or entity names in each paragraph of every document with identical noun phrases, verb phrases or entity names in every other paragraph of every document (*word co-occurrence and noun phrase matching used in a similarity calculation, Pages 455-456, Document Analysis*),

Counting the links for each paragraph (*determining the amount of matching terms for each paragraph unit, Page 455, System Architecture; and Page 456, Document Analysis*), denoting the number of links as the significant score of that paragraph (*measuring paragraph pairwise similarity based upon matching term occurrence frequency, Page 456, Document Analysis*),

Ranking the paragraphs by the significant score (*clustering based on a similarity score ranking, Page 456, Document Analysis*),

Selecting paragraphs based on ranking (*most similar paragraph selection, Page 456, Document Analysis; Page 454, Identifying themes; and Page 455, System Architecture*); and

Rewriting the selected paragraphs into a summary (*rewriting the selected theme paragraphs into a summary at a generation component, Fig. 3, Pages 456- 457, Language Generation- Sentence Generation Component*).

With respect to **Claim 5**, McKeown discloses:

The documents have a common topic independent of domain (*summarizing multiple documents in any domain, Page 459, Conclusions and Future Work*).

With respect to **Claim 6**, McKeown recites the summarization of English documents (*see Fig. 2*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over McKeown et al (*"Towards Multidocument Summarization by Reformulation: Progress and Prospects," 1999*) in view of McKeown et al (*U.S. Patent: 6,473,730*) and further in view of Ueda (*U.S. Patent: 6,493,663*).

With respect to **Claim 2**, McKeown discloses the multiple document summarization method and system featuring noun phrase extraction as applied to Claim 1. McKeown does not specifically suggest a means for categorizing noun phrases that are entity names and converting the entity names into canonical form, however McKeown (*U.S. Patent: 6,473,730*) recites:

Categorizing the noun phrases that are entity names (*identified proper noun phrases relating to an entity, Col. 3, Line 62- Col. 4, Line 15; and Col. 5, Line 41-57*); and

Converting the entity names into canonical form (*Col. 5, Lines 7-20*).

McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) and McKeown (*U.S. Patent: 6,473,730*) are analogous art because they are from a similar field of endeavor in document summarization. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) with the parsing algorithms taught by McKeown (*U.S. Patent: 6,473,730*) in order to implement a further means for identifying significant topical segments (*McKeown, Col. 2, Lines 35-37*).

McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) and McKeown (*U.S. Patent: 6,473,730*) do not specifically suggest the extraction of verb phrases; however Ueda discloses the extraction of such phrases (*Col. 20, Line 65- Col. 21, Line 4*).

McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999), McKeown (*U.S. Patent: 6,473,730*), and Ueda are analogous art because they are from a similar field of endeavor in document summarization. Thus, it would have been

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obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of McKeown (*"Towards Multidocument Summarization by Reformulation: Progress and Prospects,"* 1999) in view of McKeown (U.S. Patent: 6,473,730) with the verb phrase extraction taught by Ueda in order to include additional well-known phrase types so that a user can select an appropriate summarization style (Ueda, Col. 21, Lines 1-4).

7. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over McKeown et al (*"Towards Multidocument Summarization by Reformulation: Progress and Prospects,"* 1999) in view of McKeown et al (U.S. Patent: 6,473,730).

With respect to **Claim 4**, McKeown discloses the multiple document summarization method and system as applied to Claim 1. McKeown does not specifically suggest a means for applying a co-reference resolution algorithm and replacing pronouns with full entity name antecedents, however McKeown (U.S. Patent: 6,473,730) recites:

Applying a co-reference resolution algorithm to the paragraphs (*linking noun phrases to a head noun phrase- see "red wine" example, Col. 5, Lines 7-20*); and

Replacing pronouns in the paragraphs with their full entity name antecedents (*merging pronouns and proper noun phrase processing, Col. 5, Lines 7-57*).

McKeown (*"Towards Multidocument Summarization by Reformulation: Progress and Prospects,"* 1999) and McKeown (U.S. Patent: 6,473,730) are analogous art because they are from a similar field of endeavor in document summarization. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of McKeown (*"Towards Multidocument Summarization by Reformulation: Progress and*

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Prospects, " 1999) with the rewriting algorithms taught by McKeown (*U.S. Patent: 6,473,730*) in order to implement a further means for identifying significant topical segments (*McKeown, Col. 2, Lines 35-37*).

8. **Claims 7, 11-13, and 17-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over McKeown et al ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*, " 1999) in view of Ueda (*U.S. Patent: 6,493,663*).

With respect to **Claims 7 and 13**, McKeown discloses the multiple document summarization method and system as applied to Claim 1. McKeown does not specifically suggest method implementation as a program stored on a computer readable medium or associated processing elements, however Ueda discloses summarizing method implementation as a program stored on a computer readable medium (*Col. 3, Lines 20-24*). Ueda also recites method implementation using a computer processor that would inherently require a bus for communicating with the disclosed computer memory medium to achieve document summarization processing (*Col. 23, Lines 29-44*).

McKeown and Ueda are analogous art because they are from a similar field of endeavor in document summarization. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of McKeown with the computer program implementations taught by Ueda in order to provide a means for easily implementing a document summarization method on any type of computer (*Ueda, Col. 3, Lines 20-24*).

With respect to **Claims 11 and 17**, McKeown discloses:

The documents have a common topic independent of domain (*summarizing multiple documents in any domain, Page 459, Conclusions and Future Work*).

With respect to **Claims 12 and 18**, McKeown recites the summarization of English documents (*see Fig. 2*).

9. **Claims 8, 10, 14, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over McKeown et al ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) in view of Ueda (*U.S. Patent: 6,493,663*) and further in view of McKeown et al (*U.S. Patent: 6,473,730*).

With respect to **Claims 8 and 14**, McKeown in view of Ueda discloses the multiple document summarization method and system featuring noun phrase extraction as applied to Claims 7 and 13. Ueda also discloses the extraction of verb phrases (*Col. 20, Line 65- Col. 21, Line 4*). McKeown in view of Ueda does not specifically suggest a means for categorizing noun phrases that are entity names and converting the entity names into canonical form, however McKeown (*U.S. Patent: 6,473,730*) recites:

Categorizing the noun phrases that are entity names (*identified proper noun phrases relating to an entity, Col. 3, Line 62- Col. 4, Line 15; and Col. 5, Line 41-57*); and

Converting the entity names into canonical form (*Col. 5, Lines 7-20*).

McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999), Ueda, and McKeown (*U.S. Patent: 6,473,730*) are analogous art because they are from a similar field of endeavor in document summarization. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings

of McKeown ("*Towards Multidocument Summarization by Reformulation: Progress and Prospects*," 1999) in view of Ueda with the parsing algorithms taught by McKeown (U.S. Patent: 6,473,730) in order to implement a further means for identifying significant topical segments (McKeown, Col. 2, Lines 35-37).

With respect to **Claims 10 and 16**, McKeown (U.S. Patent: 6,473,730) further discloses:

Applying a co-reference resolution algorithm to the paragraphs (*linking noun phrases to a head noun phrase- see "red wine" example, Col. 5, Lines 7-20*); and

Replacing pronouns in the paragraphs with their full entity name antecedents (*merging pronouns and proper noun phrase processing, Col. 5, Lines 7-57*).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Nishizawa et al (*U.S. Patent: 6,537,325*)- discloses a method for document summarization using paragraph selection.

Goldstein et al (*"Multi-Document Summarization by Sentence Extraction, " 2000*)- teaches document summary using selected passages, wherein the passages can correspond to paragraphs.

Mitra et al (*"Automatic Text Summarization by Paragraph Extraction," 1997*)- teaches a method for text summarization using paragraph extraction.


McKeown et al (*"Generating Summaries of Multiple News Articles," 1995*)- discloses a natural language system that summarizes a series of news articles on the same event.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached at (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
11/17/2006



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